

brought to shape the pumice was sprayed with $\frac{1}{2}$ gallon of No. 1 tar per square yard, and before the tar was wholly absorbed a coat of chippings graded $\frac{7}{8}$ in. to $\frac{5}{8}$ in. was applied. After the lapse of a few weeks a second coat of heavy road-oil at the rate of $\frac{5}{12}$ gallon per square yard was sprayed, and covered with chippings graded $\frac{5}{8}$ in. to $\frac{3}{8}$ in. This type of work enables the maximum use to be made of inferior local materials.

Stratford District.

Stratford-Taumarunui Main Highway: Moki Tunnel.—This tunnel is through a razor-backed papa ridge and is 8 chains in length, 12 ft. in width, having a Gothic arch, the point of which is 20 ft. above road-level. Owing to the uneven bedding of the papa strata, large flakes are apt to become dislodged from the roof, and for this reason a small amount of timber lining has been placed in the roof. The saving in climb and distance to motor-vehicles justified the construction of this tunnel.

Wellington District.

Wellington-Napier Main Highway: Sealing in Wairarapa Division.—At the beginning of the year there were on this highway several lengths of gravel surfaces totalling 20 miles. The Board was anxious to close the gaps and so give a continuous length of dustless surfacing from Wellington to some 10 miles north of Napier, a total distance of 230 miles. Contracts for the whole of the work were let, and generally have been about 50 per cent. completed. The work was delayed by wet weather. On one contract many timber stumps were discovered below the subgrade, causing considerable expense and delay.

The type of surfacing on these contracts generally consists of a priming coat of light tar, followed by an application of heavy road-oil and large chippings, 1 in. to $\frac{5}{8}$ in.

Auckland-Wellington Main Highway: Whirokino Deviation.—The Whirokino Section receives the flood overflow from the Manawatu River, and during a wet season the highway may be covered with water up to a depth of 10 ft. Traffic is disorganized for from twenty to thirty days per annum, and in order to provide an all-weather route it was decided to put in hand the raising of the road above flood-level. The flood-discharge of the Manawatu River is estimated at 200,000 cusecs, and in order to provide for this volume of water it is necessary to build a viaduct 55 chains long, in addition to a new bridge over the Manawatu River, which requires to be 600 ft. long to span the main channel.

The work of forming the approach banks up to 14 ft. in height over a distance of 60 chains has been put in hand, likewise the driving of test piles to obtain preliminary information for bridge-designing purposes. The work will cost approximately £80,000.

Nelson District.

Takaka Hill, Whangamoa Hill, and Hope Saddle: Improvements.—The widening and improvements on these sections of highway are typical of many works undertaken throughout the country for the relief of unemployment.

The Takaka Hill in particular is regarded as the longest and most tortuous hill road in the Dominion. It is 10 miles long on the Riwaka side and 7 miles on the Takaka side, and the summit is 2,600 ft. above sea-level. At the higher elevations it is subject to snow-storms and severe frosts in winter, making traffic conditions unpleasant and dangerous. The improvements being undertaken will give ample road-width, and the dangerous section near Hawk Crag has been superseded by a deviation on the sunny side of the hill. It is perhaps not out of the way to remark here on the lack of consideration that has been shown by some motorists using this road. They have complained frequently about conditions which it is natural to expect while major reconstruction work of this kind is in progress. Regular users of the road, however, recognize that some inconvenience must be suffered if the route is to be improved and at the same time kept open for traffic. Every effort is made to give to road users the best service that is possible.

Nelson-Inangahua Junction Main Highway: Richmond-Belgrove Section.

On this section an important improvement was the plant-mix surfacing over a distance of 13 miles. The surface was first built up, shaped, and primed with bitumen, cut-back with fuel oil and tar-oil, and later surfaced with $\frac{3}{4}$ in. thickness of plant-mix of densely graded aggregate. The whole work cost £12,000.

West Coast District.

Inangahua Junction-Weheka Main Highway: Kumara-Flowery Creek Deviation.—This deviation, 8 miles in length, will reduce the distance between Greymouth and Hokitika by $8\frac{1}{2}$ miles. During the period over 3 miles were completed. The work involves the construction of six reinforced concrete bridges, all of which are in hand.

Canterbury District.

Christchurch-Dunedin Main Highway: Rangitata Deviation.—During the period a commencement was made with this deviation, which is 20 miles long, and which shortens the distance between Christchurch and Dunedin by 10 miles. Generally, the formation is very light. Two large bridges, however, are required, one 2,000 ft. long over the north branch of the Rangitata River, and the other 1,000 ft. long over the south branch. Good progress has been made on the 6 miles of the section between Hinds and Ealing.